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SYSTEM OF TAMIL NUMERICAL, TIME AND MEASUREMENTS MAPPING FROM PINKALANDAI AND INSCRIPTIONS

Author: Dr.K.VENGATESAN (TNHC2K10LM-3533)*

Introduction

The measurement methods of the ancient Tamils are very strange. Many scholars and scholars say that the Tamils in those days did mental calculations. You can see that the method used by the size of the elongated elbow when buying plasters is still the case today. In ancient architecture, the Tamils have followed the measure of the elbow. Researchers have found that many elbows (one or two inches long) were used as evidence of this. So we can say conclusively that the length measurement methods of Tamils are standardized. The science of South India as a whole is not yet fully known, as a large number of inscriptions in Tamil Nadu and Kerala have not yet been read or officially published. Tamils have developed a plow to measure milk and oils (liquid). Evidence of this can be seen in the use of one plow, two plow sized copper, brass and silver utensils in the daily life of the Tamils even today. Plows are also sometimes used to measure goods. Therefore the measurement methods of Tamils are unique. According to Thirukural... If you explore the right time and do it in the right place, even if you want to reach the world, it will help.¹

ஞாலம் கருதினுங் கைகூடுங் காலம்

கருதி இடத்தாற் செயின். (சாஅயிச - 484)

தகுதியான காலத்தை ஆராய்ந்து, ஏற்ற இடத்திலேயும் செய்தால், உலகத்தையே அடைய நினைத்தாலும் அதுவும் கைகூடும்

* Associate Professor in History Education, Vels Institute of Science Technology and Advanced Studies (VISTAS), Chennai, INDIA – 600 117 [Orchid Id: 0000-0003-0191-881X; Researcher Id: ABG-7921-2021; Google Scholar Id: GFnZzL4AAAAJ]

Research Problem

The thoughts of Tamils all over the world as his abode and all the people of the world as his blood relatives. The Sangam age poet Kaniyanpongunran wrote in his Purananutru song that everyone is my blood relatives and every places is my places. Not only such high thinking but also the Tamil kings expanded their political frontiers across the seas. The title of Rasendra Chola's Gadaram Kondan is a proof of this. But the one who wanted to measure the world measured the time based on the time especially the kings came to their rule, the Three Kingdom i.e. Chera, Chola and Pandiya who were ruled for years forgot to generally mark only the year so this article is an attempt to take a general study hypothesis and answer to the chronology, time management and measurement system of Tamil culture.

Delimitation

This research articles delimitation the system of Tamil Numerical system, Time and Measurements mapping from Pinkalandai and some of the Inscriptions.

Significance of the Research Article

Tamils say New Year Thai, Chithirai and Avani differently. Some people differently say that the first Tamil month is Avani, citing Tolkappiyam evidence, and some say that the first Tamil month is Chithirai, citing Tolkappiyam evidence, as the day of the sun's entry into the first solar month, Mada, is the New Year. Therefore, need of significance findings to declare which is Tamil New Year 1st Thai month or 1st Chithirai month.

Source and Methodology

Source were taken some important inscriptions of Viluppuram district and other district of Tamil Nadu as well as Pingalanthai (old Tamil agaraathi – dictionary) Historical and descriptive method adopted in this article and also MLA 9th edition formula were used in this article of historical write-up.

Tamil Numerical System

முந்திரி	Mundiri	1/320
அரைக்காணி	Araikkāṇi	1/160
அரைக்காணி முந்திரி	Araikkāṇi Mundiri	3/320
காணி	Kāṇi	1/80
கால் வீசம்	Kālvīśam	1/64
அரைமா	Arai mā	1/40
அரை வீசம்	Arai vīśam	1/32
முக்காணி	Mukkāṇi	3/80
முக்கால் வீசம்	Mukkālvīśam	3/64
ஒருமா	Oru mā	1/20
மாகாணி (வீசம்)	Mākāṇi (Vīśam)	1/16
இருமா	Iru mā	1/10
அரைக்கால்	Araikkāl	1/8
மூன்றுமா	Mūṇru mā	3/20
மூன்று வீசம்	Mūṇru vīśam	3/16
நாலுமா	Nālu mā	1/5
கால்	Kāl	¼
அரை	Arai	1/2
முக்கால்	Mukkāl	¾
ஒன்று	Onru	1
இரண்டு	Irainḍu	2
மூன்று	Mūṇru	3
நான்கு	Nāṇgu	4
ஐந்து	Aindu	5
ஆறு	Āru	6
ஏழு	Ēlu	7
எட்டு	Etṭu	8
ஒன்பது	Onpadu	9
பத்து	Pattu	10
இருபது	Irupadu	20
முப்பது	Muppadu	30
நாற்பது	Nārpadu	40
ஐம்பது	Aimpadu	50
அறுபது	Arupadu	60
எழுபது	Elupadu	70
எண்பது	Enpadu	80
தொண்ணூறு	Tonṇūru	90
நூறு	Nūru	100
ஆயிரம்	Āyiraim	1,000
பதினாயிரம்	Padiṇāyiraim	10,000
நூறாயிரம் (இலக்கம்)	Nūṛāyiraim	100,000
பத்து நூறாயிரம் (பத்திலக்கம்)	Parrunūṛāyiraim	10,00,000
நூறு நூறாயிரம் (கோடி)	Nūrunūṛāyiraim	1,00,00,000

Numerals in Multiples of 10

ஒன்று (ஏகம்)	Onru (Ēkham)	1
பத்து (தசம்)	Pattu (Thaśam)	10
நூறு (சதம்)	Nūru (Śtham)	100
ஆயிரம் (சகசிரம்)	Āyiraim (Śkaśiraim)	1000
பதினாயிரம் (அயுதம்)	Paṭiṇāyiraim	10,000
நூறாயிரம் (ஸட்சம் - நியுதம்)	Nūrāyiraim	1,00,000
பத்து நூறாயிரம் (பிரயுதம்)	Pattu Nūrāyiraim	10,00,000
கோடி	Kōḍi	1,00, 00,000
அற்புதம்	Arputham	10,00, 00,000
நிகற்புதம்	Nikarṇputham	1,00,00, 00,000
கும்பம்	Kumbam	10,00,00, 00,000
கணம்	Gaṇam	1,00,00,00, 00,000
கற்பம்	Karṇpam	10,00,00,00, 00,000
நிகற்பம்	Nikarṇpam	1,00,00,00,00, 00,000
பதுமம்	Pathumam	10,00,00,00,00, 00,000
சங்கம்	Śaṅgam	1,00,00,00,00,00, 00,000
வெள்ளம் (சமுத்திரம்)	Vellam	10,00,00,00,00,00, 00,000
அந்நியம்	Anniyam	1,00,00,00,00,00,00, 00,000
மத்தியம் (அர்தம்)	Maththiyam	10,00,00,00,00,00,00, 00,000
பரார்த்தம்	Parārtham	1,00,00,00,00,00,00,00, 00,000
பூரியம்	Pūriyam	10,00,00,00,00,00,00,00,00,00,000
பிரமகற்பம் (கோடிக்கோடிக்கோடி – முக்கோடி)	Piraimakarṇpam	1,00,00,00,00,00,00,00,00,00,00,000

Weight and Measurement

Balances are of six kinds

(1) Maṇiṭharāśu : This small balance is used for weighing precious stones etc.

- (2) Ponṭharāśu : A small balance used for weighing gold and other precious metals.
 (3) Ulōkatharāśu : A bigger balance used for weighing copper, brass and other metals.
 (4) Paṇḍatharāśu : A balance used for weighing cereals.
 (5) Kaṭṭaittharāśu : A very big balance used for weighing fire-wood luggage etc.
 (6) Thūḱku : A balance used for weighing vegetables. This is a measuring rod with divisions marked on it and having a basket hanging from one end.

Table of weighing gold etc

4 Nelledai	=	1 Kuṇṛimani
2 Kuṇṛimani	=	1 Mañjāḍi
2 Mañjāḍi	=	1 Paṇaveḍai
5 Paṇaveḍai	=	1 Kaḷaṇḱu
8 Paṇaveḍai	=	1 Varāhaṇḱai
4 Kaḷaṇḱu	=	1 Kāśu
4 Kāśu	=	1 Palam

Miscellaneous Table of weights

32 Kuṇṛimani	=	1 Varāhaṇḱai
10 Varāhaṇḱai	=	1 Palam
40 Palam	=	1 Vīśai
100 Palam	=	1 Ka
6 Vīśai	=	1 Thūlam
8 Vīśai	=	1 Manaṅgu
20 Manaṅgu	=	1 Bāram

Table of Liquid Measure

5 Ceviḍu	=	1 Āḷāḱku
2 Āḷāḱku	=	1 Uḷakku
2 Uḷakku	=	1 Uri*
2 Uri	=	1 Paḍi*
8 Paḍi	=	1 Marakkāl (Kurūṇi)
2 Kurūṇi	=	1 Padakku

* In some place Nāḷi is equated with Uri and in other places it is equated with Paḍi.

2 Padakku = 1 Thūṇi

Table of Grain Measure

Grains will be heaped conically over the mount of the measuring vessel.

360 Nel (Paddy)	=	1 Ceviḍu
5 Ceviḍu	=	1 Āḷāḱḱu
2 Āḷāḱḱu	=	1 Uḷakku
2 Uḷakku	=	1 Uri
2 Uri	=	1 Paḍi
8 Paḍi	=	1 Marakkal or Kuruni
2 Kurūṇi	=	1 Padakku
2 Padakku	=	1 Thūṇi
5 Marakkāl	=	1 Parai
80 Parai	=	1 Kariśai
48 = 96 Paḍi	=	1 Kalam
120 Paḍi	=	1 Pothi

One Paḍi Contains of

Avarai (Beans)	=	1,800
Miḷaku (Pepper)	=	12,800
Nel (Paddy)	=	14,400
Payaru (Green gram)	=	14,800
Arisi (Rice)	=	38,000
Eḷ (Gingili Seed)	=	1, 15,200

Eighteen Varieties of Grains

1. Nel (Paddy)
2. Varagu (Common millet)
3. Thiṇai (Bermuda)
4. Cāmai (Small millet)
5. Iruṅgu or Sōlam (Maize)
6. Kēḷvaragu (Millet)
7. Thōgai (Grain obtained from bamboo)
8. Pul (Cluster grass)
9. Kōdumai (Wheat)
10. Thuvarai (Toor gram)
11. Pācippayaru (Green gram)
12. Uḷundu (Black gram)

13. Kol (Horse gram)
14. Eḷ (Gingily)
15. Avarai (Bean)
16. Mochchai (Big Bean)
17. Thaṭṭaipayaṟu (Chowlee Bean or flat bean)
18. Kaḍalai (Bengal gram)

Linear Measure

10 Kōṇ	=	1 Nunnaṇu
10 Nunnaṇu	=	1 Aṇu
8 Aṇu	=	1 Kadirttugal
8 Kadirttugal	=	1 Tuśumbu
8 Tuśumbu	=	1 Mayirnuṇi
8 Mayirnuṇi	=	1 Nuṇmaṇal
8 Nuṇmaṇal	=	1 Śīru Kaḍugu
8 Śīru Kaḍugu	=	1 Eḷ
8 Eḷ	=	1 Nel
8 Nel	=	1 Virail
12 Virail	=	1 Cāṇ
2 Cāṇ	=	1 Muḷam
4 Muḷam	=	1 Bāgam
6000 Bāgam	=	1 Kādam
4 Kādam	=	1 Yōcaṇai

Time Measure

2 Kaṇṇimai	=	1 Noḍi
2 Kainoḍi	=	1 Māttiraii
2 Mattiraii	=	1 Guru
2 Guru	=	1 Uyir
2 Uyir	=	1 Śānigam
12 Śānigam	=	1 Vināḍi
60 Vināḍi	=	1 Nāḍi Nālīgai
2 ½ Nālīgai	=	1 Ōrai

3 ¾ Nāl̥igai	=	1 Muhurtham
2 Muhurtham	=	1 Cāmam
4 Cāmam	=	1 Poḷudu
2 Poḷudu	=	1 Nāl̥
15 Nāl̥	=	1 Pakkam
2 Pakkam (30 Nal)	=	1 Mādam
6 Mādam	=	1 Ayaṇam
2 Ayaṇam	=	1 Āṇḍu
60 Āṇḍu	=	1 Vaṭṭam
120 Āṇḍu	=	1 Viyāḷa Vaṭṭam

Six Divisions of a Day

Kālai (morning)	-	6 am to 10 am
Naṇṇakal	-	10 am to 2 pm
Ērppāḍu	-	2 pm to 6 pm
Mālai (evening)	-	6 pm to 10 pm (<i>śaṇṭhi</i>)
Iḍaiyāmam	-	10 pm to 2 am
Vaikaṇṇai	-	2 am to 6 am

Six Seasons of a Year

Kār (கார்)	–	from Āvaṇi to Puraṭṭāsi
Kūthir (கூதிர்)	–	from Aippaśi to Kārthikai
Muṇṇaṇi (முன்பணி)	–	from Mārkaḷi to Thai
Pinṇaṇi (பின்பணி)	–	from Māśi to Paṅguṇi
Iḷavēṇil (இளவேனில்)	–	from Chittrai to Vaikāśi ()
Muduvēṇil (முதுவேனில்)	–	from Āṇi to Āḍi

Yāñḍukaḷ (Eras) in Indian Epigraphs

(i) **The Kali Era:** Inscriptions mention the Kali era counted from the vernal equinox of 3101 B.C. Āṇamalai inscription* is dated in the Kali era 3871, i.e. A.D.770. In some of the later records, this date is coupled with a date in the Śaka era.

(ii) **The Vikrama Śamrat:** This era begins in 57 B.C. and is used mostly in north India. This is also called *Krita, Malava abda or just samvat*.

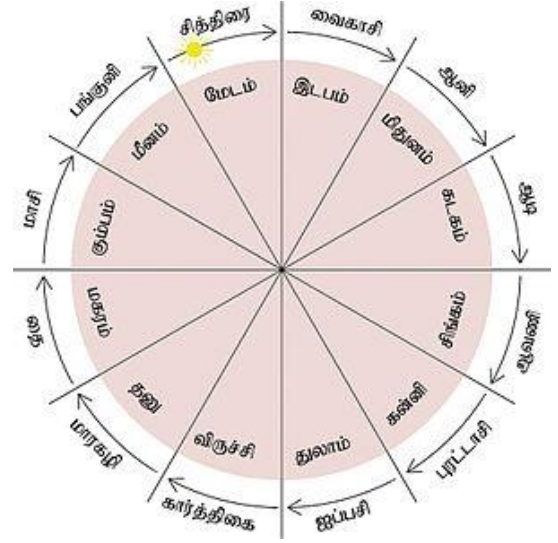
(iii) **The Śaka Era:** The most Common Era used in Tamil epigraphy begins in A.D.78. The earliest epigraphical reference to this era is found in the Badāmi inscription of Pulakēśin I, A.D.543 (E.I. Vol.27).

(iv) **The Gupta Era and Vallabhi Era:** The Gupta era and the Vallabhi era, beginning in A.D.319, are confined to north Indian references.

(v) **The Kollam Era:** The Kollam era also called *Kollam āñḍu* begins in A.D.824. This is popular in Kerala and in the extreme south. The expression Kollam Thōñṛi, suggests that the era has reference to the founding of Kollam, the town.

(vi) **Viyāḷa Vaṭṭam (Jupiter Cycle):** Sometimes Tamil inscriptions from the west coast are dated in the Jupiter cycle, otherwise known as Viyāḷa-vaṭṭam. The planet Jupiter stays in each house of the Zodiac for roughly one year and the year is named after that house. Thus when Jupiter is in Aries, Taurus, Gemini etc., the years are called Mēsha-Viyāḷam, Rishabha-viyāḷam, Mithuna-viyāḷam, etc., respectively. The Tamil inscriptions of Bhāskara Ravivarman are typical examples.

(vii) **Chālukya Vikrama Era:** The western Chalukyan ruler Vikramaditya VI started an era of his own, named the Chālukya Vikrama era beginning with A.D.1075 – 76. This continued only



* There are two inscriptions on either side of the entrance to the central shrine of Anamalai hill. The first inscription, on the left side of the entrance, being cut boldly and deeply is well preserved. The script is Grantha. This consists of three verse, of which the first mentions the sons of Mara of the Vaidya family, who was the minister of the Pandiya king Parantaka. He was perhaps a poet too and hence is called Madhurakavi. His actual name, Marangari, occurs in the second inscription. He was a native of Karavandapura, or according to the second inscription, of Kalakkudi. The third verse contains the data a Sunday in the month of Karttika of the year 3871 of the Kali era (AD 770). On this day an image of Vishnu was set up in the cave. (Ref: E.I. Vol.III, No.33)

till the early part of his reign and subsequently fell into disuse. Its use was confined only to parts of the Karnataka and Telugu countries.

(viii) Many other eras are found in the inscriptions of north India. There are two eras, the Gupta era and the Vallabhi era, both beginning from A.D.319. Certain other eras are; the Kalachuri or the Chēdi era (AD 606 - 607); the Newman era (AD 879); the Lakshman Sene era (AD 1179); the Gaṅga era (of the Eastern Ganges of Kaliṅga) A.D.496. During the Sultanate of Madurai (14th century A.D.) the Higerai was used in some Tamiḷ inscriptions. The Jaina manuscripts use the Mahāvīra era or Vīra-Nirvāṇa era with the day of Mahāvīra Nirvāṇa as its starting point. Similarly, an era, with the date of the Buddha's Nirvāṇa is the starting point of an era used by the Buddhists in India and abroad.

Reference and End Notes

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